

## CLAIMS

## 1. A cement admixture

which comprises a polycarboxylic acid copolymer having  
5 a polyalkylene glycol side chain,

said polycarboxylic acid copolymer being constituted of  
two or more species of copolymers with different acid values,  
and

10 at least one of said two or more species of copolymers  
with different acid values having an oxyalkylene group containing  
3 or more carbon atoms.

## 2. The cement admixture according to Claim 1,

wherein the ratio of the acid value of said two or more  
15 species of copolymers is 1.2 to 5.

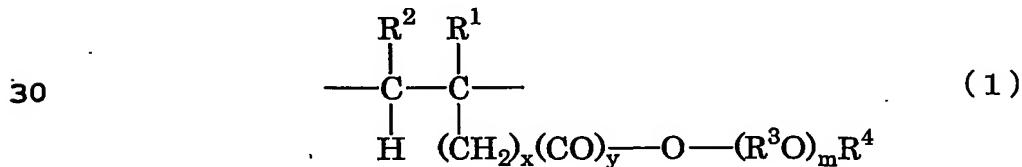
## 3. A cement admixture

which comprises a polycarboxylic acid copolymer having  
a polyalkylene glycol side chain containing an oxyalkylene group  
20 having 3 or more carbon atoms,

said polycarboxylic acid copolymer being constituted of  
two or more species of copolymers with a weight average molecular  
weight of 20000 or less.

## 25 4. The cement admixture according to Claim 1, 2 or 3,

wherein said copolymer has a site represented by the  
following formula (1);

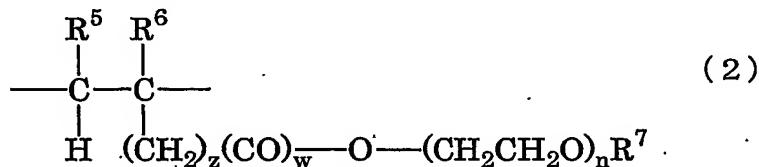


in the formula,  $\text{R}^1$  and  $\text{R}^2$  may be the same or different and each  
represents a hydrogen atom or a methyl group;  $x$  represents a  
35 number of 0 to 2,  $y$  represents 0 or 1;  $\text{R}^3\text{Os}$  may be the same or

different and each represents an oxyalkylene group having 2 to 18 carbon atoms, and 0.01 to 49 mole % of an average molar number of addition of the oxyalkylene group is an oxyalkylene group having 3 to 18 carbon atoms; R<sup>4</sup> represents a hydrogen atom or 5 a hydrocarbon group having 1 to 30 carbon atoms; and m is an average molar number of addition of the oxyalkylene group, and represents a number of 3 to 300,

and a site represented by the following formula (2);

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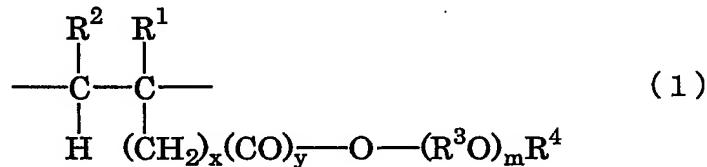
in the formula, R<sup>5</sup> and R<sup>6</sup> may be the same or different and each 15 represents a hydrogen atom or a methyl group; z represents a number of 0 to 2; w represents 0 or 1; R<sup>7</sup> represents a hydrogen atom or a hydrocarbon group having 1 to 30 carbon atoms; and n is an average molar number of addition of an oxyethylene group, and represents a number of 1 to 300.

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5. A cement admixture comprising a polycarboxylic acid copolymer,

wherein said polycarboxylic acid copolymer has the site represented by the following formula (1);

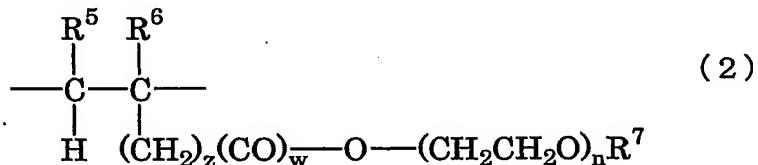
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30 in the formula, R<sup>1</sup> and R<sup>2</sup> may be the same or different and each represents a hydrogen atom or a methyl group; x represents a number of 0 to 2; y represents 0 or 1; R<sup>3</sup>Os may be the same or different and each represents an oxyalkylene group having 2 to 18 carbon atoms, and 0.01 to 49 mole % of an average molar number 35 of addition of the oxyalkylene group is an oxyalkylene group

having 3 to 18 carbon atoms; R<sup>4</sup> represents a hydrogen atom or a hydrocarbon group having 1 to 30 carbon atoms; and m is an average molar number of addition of the oxyalkylene group, and represents a number of 3 to 300,

5 and the site represented by the following formula (2);

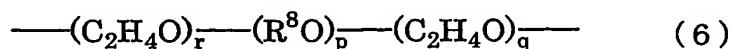


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in the formula, R<sup>5</sup> and R<sup>6</sup> may be the same or different and each represents a hydrogen atom or a methyl group; z represents a number of 0 to 2; w represents 0 or 1; R<sup>7</sup> represents a hydrogen atom or a hydrocarbon group having 1 to 30 carbon atoms; and 15 n is an average molar number of addition of an oxyethylene group, and represents a number of 1 to 300.

6. The cement admixture according to Claim 5,  
wherein a mole ratio of the site represented by the formula  
20 (1) and the site represented by the formula (2) in said  
polycarboxylic acid copolymer: (A) / (B) is 1/99 to 99/1.

7. The cement admixture according to Claim 5 or 6,  
wherein said polycarboxylic acid copolymer has a site in  
25 which R<sup>3</sup>O in the formula (1) is the following formula (6):



in the formula, R<sup>8</sup> represents an alkylene group having 3 to 18  
30 carbon atoms; r and q are average molar numbers of addition of  
oxyethylene groups, and each represents a number of 0 to 300,  
provided that one of r and q is 0, the other is a number of 2  
to 300; p represents an average molar number of addition of the  
oxyalkylene group, and is a number of 1 to 50, and r+p+q is a  
35 number of 3 to 300,

and the site represented by the formula (2).

8. The cement admixture according to Claim 7,  
wherein a mole ratio of the site in which  $R^3O$  in the formula  
5 (1) is the formula (6) and the site represented by the formula  
(2): (C)/(B) is 1/99 to 99/1.